

Choice Boards & Menus

Handout

Blackline Master 16:

Checklist for Creating a Choice Board

- ☐ Identify the KUDos—What do you want the students to know, understand, and be able to do?
- ☐ Brainstorm a variety of activities.
- ☐ Eliminate tasks that will not lead the students to these KUDos.
- ☐ Decide on what your choice board will look like. Will you create a tic-tac-toe, a list of choices, or a structure that matches a theme of study?
- ☐ How will you have students work through these tasks?
 - ☐ Will you have one *core* activity that all students must complete to learn a key concept and then complete a vertical, horizontal, or diagonal line of other activities from there?
 - ☐ Will you have a *free space* or *free choice* somewhere on the board where students can design their own activity?
 - ☐ Choose the activities from your brainstormed list and place onto the board.
- ☐ Decide how the projects will be evaluated.



The Access Center
Improving Outcomes for All Students K-8

Handout 3

Think-Tac-Toe

Book Report

Draw a picture of the main character.	Perform a play that shows the conclusion of a story.	Write a song about one of the main events.
Write a poem about two main events in the story.	Make a poster that shows the order of events in the story.	Dress up as your favorite character and perform a speech telling who you are.
Create a Venn diagram comparing and contrasting the introduction to the closing.	Write two paragraphs about the main character.	Write two paragraphs about the setting.

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Reflection on Reading

Think Tac Toe

<p>1.</p> <p>Choose 2 characters from your book. With another person, role play a scene from the book featuring these 2 characters.</p> <p><i>(Bodily/Kinesthetic)</i></p>	<p>2.</p> <p>Write a different ending to your story. This should change what happened in the last chapter of the book.</p> <p><i>(Verbal/Linguistic)</i></p>	<p>3.</p> <p>Draw at least 3 comic strips that highlight 3 important events in your book. Make sure the dialogue is realistic for the characters.</p> <p><i>(Visual/Spatial)</i></p>
<p>4.</p> <p>Design a poster advertising your book. Include interesting details about the book that would make others want to read it.</p> <p><i>(Visual/Spatial)</i></p>	<p>5.</p> <p>Create song lyrics and music to tell about your book. Use the book title as the song title. Perform for your class or record your song on audio tape.</p> <p><i>(Musical/Rhythmic)</i></p>	<p>6.</p> <p>Draw a picture and write a paragraph describing the outdoor setting (or settings) of your book. How did the setting affect the story?</p> <p><i>(Naturalist)</i></p>
<p>7.</p> <p>Write a letter to the author telling why you liked the book or why you didn't like it. Give valid reasons for your opinion.</p> <p><i>(Intrapersonal)</i></p>	<p>8.</p> <p>Make an information cube about your book with the following on the 6 different sides of the cube:</p> <ul style="list-style-type: none"> title characters setting plot favorite part illustration of scene <p><i>(Verbal/Linguistic Bodily/Kinesthetic)</i></p>	<p>9.</p> <p>Make a time line sequencing 10 important events that happened in the book.</p> <p><i>(Logical/Mathematical)</i></p>

I/we chose activities # _____, # _____, and # _____.

Name _____ Date _____ Due date _____

1. Role Play Costumes and props realistic for characters _____ Accurate scene _____ Good voice projection and expression _____ Has written script _____ Possible points = _____	2. Alternate Ending Appropriate for characters and setting _____ Ending creative and feasible _____ Correct spelling, punctuation and grammar _____ At least two pages _____ Possible points = _____	3. Comic Strips Follows Comic Strip criteria card _____ Each comic strip has 4 or more panels _____ Events accurately portrayed _____ Realistic dialogue _____ Possible points = _____
4. Poster Follows Poster criteria card _____ Includes several details about the book _____ Uses persuasive language _____ Possible points = _____	5. Song Lyrics & Music Follows Song criteria card _____ Lyrics include several important details about book _____ Performance is clear and musically pleasing _____ Possible points = _____	6. Picture & Paragraph Picture and paragraph show natural setting _____ Has written and visual details of setting(s) _____ Explains ways the setting affected the story _____ Correct mechanics, spelling and grammar _____ Possible points = _____
7. Letter Likes or dislikes clearly stated _____ 3 or more reasons given to support point of view _____ Reasons supported by facts or examples _____ Correct spelling, punctuation and grammar _____ Possible points = _____	8. Information Cube Cube is sturdy and has 6 sides _____ Has needed information and details on each side _____ Accurate for book read _____ Neat, legible and visually attractive _____ Possible points = _____	9. Time Line Follows Time Line criteria card _____ Has 10 or more events _____ Correct sequencing of events following story in book _____ Possible points = _____

Points for activities: # _____ = _____ pts., # _____ = _____ pts., # _____ = _____ pts.

Name _____ Total points _____ Grade _____

Animal Extensions

Think-Tac-Toe

Write a first-person story in which the main character is an animal who tries to live with humans.	Do a research study about an organization that is working to save endangered animals from extinction. Plan a campaign to save an animal you admire.	Read 10 or more poems about animals. Write poetry about animals that interest you.
Read about people who have tamed and lived with wild animals. Describe the characteristics such people have in common.	Student Choice	Plan and present a debate about the merits of preserving a certain area for the use of its existing animals and plants. The other side of the debate would give reasons to develop the area into homes or shopping.
Pretend you're an archaeologist who has just discovered the remains of an extinct animal. Share information about how the animal lived, why it became extinct, and how it might have been saved from extinction.	Imagine that your family acquires an unusual animal as a pet. Present information about some of the joys and challenges of having the animal.	Create a composite animal with elements of several animals. Convince someone else that it's the best animal in the world.

A Planet "Show & Tell"

(Each student must pick one square from each horizontal row and use the two together)

Create One		Pick a Way to Explain	
Use the computer to make a drawing that shows how the rotation and revolution of the Earth works to create day and night and seasons.	Paint a picture that shows how the rotation and revolution of the Earth works to create day and night and seasons.	Construct a model that shows how the rotation and revolution of the Earth works to create day and night and seasons.	Create a book or puppet show that shows how the rotation and revolution of the Earth works.
Make labels for the sun, Earth, day, night, orbit to attach to or use with your creation. Be ready to explain orally.	Write sentences* that identify and explain each part of your drawing or model and how each part works.	Write a story that explains the Earth's rotation, revolution, day and night, and seasons.	Write a poem that explains the Earth's rotation, revolution, day and night and seasons.

This differentiated review/synthesis task is based on Va. SOLs for science:

1.6 The student will investigate & understand the basic relationships between the Earth and sun, including "the sun is the source of heat & light." "night & day are caused by the rotation of the Earth." 1.7 The student will investigate and understand the relationship of seasonal change (light and temperature) to the activities & life processes of plants and animals.

Based on Unit by Bette Wood, Charlottesville, Virginia City Schools.

Writing Bingo

Try for one or more BINGOs this month. Remember, you must have a real reason for the writing experience! If you mail or email your product, get me to read it first and initial your box! Be sure to use your writing goals and our class rubric to guide your work.

Recipe	Thank you note	Letter to the editor	Directions to one place to another	Rules for a game
Invitation	Email request for information	Letter to a pen pal, friend, or relative	Skit or scene	Interview
Newspaper article	Short story	Your choice	Grocery or shopping list	Schedule for your work
Advertisement	Cartoon strip	Poem	Instructions	Greeting card
Letter to your teacher	Proposal to improve something	Journal for a week	Design for a web page	Book Think Aloud

Think Tac-Toe-Fractions

Directions: Select and complete one activity from each horizontal row.

Design a bulletin board showing the steps to change a fraction to a decimal and percent.	Write a paragraph describing the steps to change a fraction to a decimal and percent.
Build a model to teach a classmate how to change half of the 13 basic fractions to a decimal to a percent and back again.	Write a story about Freddie the fraction becoming Pedro the percent or Debbie the decimal. Or tape the story as you tell it. Draw an illustration for this or design the book cover.

Think Tac-Toe-Music

Directions: Select and complete one activity from each horizontal row.

Write a well-developed paragraph on your favorite musical style. Use musical elements to write your paragraph.	List 5 different radio stations and tell what style music they play. Tell me what your favorite radio station is and 2 sentences why.	Find a website for 3 different styles of music. Fill out a web site form on each site.
List 5 different dynamics and 5 different tempo markings. Use the musical terms for these elements.	Complete 3 music analysis forms using 3 different styles of music.	Write a one-page paper describing what musical elements might be used by a film composer writing music for a horror film. Use and describe at least 5 different elements.

Learning Contract—Think Tac Toe

Ancient Civilizations – Grade 6

GEOGRAPHY	IMPORTANT PEOPLE	CONTRIBUTIONS
<p>As an ancient mapmaker, you are commissioned to create a map of your land including all natural land forms, a compass rose and a scale. Also find examples of each land form in a modern civilization.</p>	<p>You are an ancient scribe. Write and illustrate a thorough description of a famous character from each time period being studied. Profile yourself also.</p>	<p>Written language is an essential part of everyday life. Your task is to create an alphabet. Include a translation into modern English, a written description of the language development & a 3D artifact of the new language.</p>
<p>Imagine that you are an ancient citizen who awakens to discover that all water has evaporated. Explain in detail how this would alter your way of life. Also, do this for the town where you live.</p>	<p>Assume the identity of a famous person from the given time period. Create a journal entry reflecting the ideas, values, and components of daily life for that person & you.</p>	<p>Recreate in 3D form a famous work of architecture from your time period. Compare and contrast this piece to one piece of modern day architecture. Find one example of this architecture's presence in modern day society.</p>
<p>Assume you are persuading others to visit your ancient civilization. Design a descriptive, accurate travel brochure. Include both natural and man-made elements that would attract tourists.</p>	<p>You are a famous sculptor. Create a 3D representation of a well-known leader, god, goddess, or common citizen. Include a museum exhibit card.</p>	<p>Find a way to explain and show the importance of music and the arts to your culture. Also show at least 2 examples with roots in our time.</p>

Charles Kyle & Kathy Reed • Illinois

CIVIL WAR

Advanced Level

GEOGRAPHIC	Create a series of five state maps, which include a key, that illustrates <u>major</u> events of the war. ①	Make a relief map of U.S. depicting places of historical and geographical significance before, during, or after the civil war. ②	Create a map which shows the South and its territory at its greatest size as a result of victories in key battles. ③
	Create a collage which illustrates the economic conditions of the North and South – rich/poor for both. ④	Generate an alternative economic system which would have enabled the South to have a viable economy without slavery. ⑤	Create a bar graph reflecting a data base that portrays the costs of the war for the North and the South. ⑥
CULTURAL	Imagine a conversation between Adams and Jefferson and turn it into a radio play as they “Look down on” the Civil War. ⑦	Write a poem or compose a song conveying the feelings of a slave who has just freedom. ⑧	Locate two “popular” songs and one slave ‘song.’ Write an exhibit card explaining how the songs reflect the lives & times of the ‘singers.’ Prepare an audio collage to present. ⑨
	Prepare Jeff Davis’s response to Lincoln when he refused the command of Union forces and assumed presidency of the Confederacy. ⑩	Write a letter (one) from five southern people (thoughtful ones) which comprises their responses to the Gettysburg address ⑪	Act out a trial: Lincoln is accused of usurping states’ rights. Include Magna Carta, Declaration of Independence and Constitution in you’re arguments. ⑫
ETHICS			

Novel Think Tac-Toe

Directions: Select & complete one activity from each horizontal row to help you and others think about your novel. Remember to make your work:

- » Thoughtful
- » Original
- » Rich with detail
- » accurate



Novel Think-Tac-Toe *basic version*

Directions: Select and complete one activity from each horizontal row to help you and others think about your novel. Remember to make your work thoughtful, original, rich with detail, and accurate

Character	Create a pair of collages that compares you and a character from the book. Compare and contrast physical and personality traits. Label your collages so viewers understand your thinking	Write a bio-poem about yourself and another about a main character in the book so your readers see how you and the characters are alike and different. Be sure to included the most	Write a recipe or set of directions for how you would solve a problem and another for how a main character in the book would solve a problem. Your list should help us know you and the
Setting	Draw/paint and write a greeting card that invites us into the scenery and mood of an important part of the book. Be sure the verse helps us understand what is important in the scene and why.	Make a model or map of a key place in your life, and an important one in the novel. Find a way to help viewers understand both what the places are like and why they are important in your life and the characters'.	Make 2 timelines. The first should illustrate and describe at least 6-8 shifts in settings in the book. The second should explain and illustrate how the mood changes with the change in setting.
Theme	Using books of proverbs and/on quotations, find at least 6-8 that you feel reflect what's important about the novel's theme. Find at least 6-8 that do the same for your life. Display them and explain your choices.	Interview a key character from the book to find out what lessons he/she thinks we should learn from events in the book. Use a Parade magazine for material. Be sure the interview is thorough.	Find several songs you think reflect an important message from the book. Prepare an audio collage. Write an exhibit card that helps your listener understand how you think these songs express the book's meaning.

Novel Think-Tac-Toe *advanced version*

Directions: Select and complete one activity from each horizontal row to help you and others think about your novel. Remember to make your work thoughtful, original, insightful, and elegant in expression.

Character	Write a bio-poem about yourself and another about a main character in the book so your readers see how you and the character are alike and different. Be sure to include the most important traits in each poem.	A character in the book is being written up in the paper 20 years after the novel ends. Write the piece. Where has life taken him/her? Why? Now, do the same for yourself 20 years from now. Make sure both pieces are interesting feature articles.	You're a "profiler". Write and illustrate a full and useful profile of an interesting character from the book with emphasis on personality traits and mode of operating. While you're at it, profile yourself too.
Setting	Research a town/place you feel is equivalent to the one in which the novel is set. Use maps, sketches, population and other demographic data to help you make comparisons and contrasts.	Make a model or a map of a key place in your life, and in important one in the novel. Find a way to help viewers understand both what the places are like and why they are important in your life and the characters'.	The time and place in which people find themselves and when events happen shape those people and events in important ways. Find a way to convincingly prove that idea using this book.
Theme	Find out about famous people in history or current events whose experiences and lives reflect the essential themes of this novel. Show us what you've learned.	Create a multi-media presentation that fully explores a key theme from the novel. Use at least 3 media (for example painting, music, poetry, photography, drama, sculpture, calligraphy, etc.) in your exploration.	Find several songs you think reflect an important message from the book. Prepare an audio collage. Write an exhibit card that helps your listener understand how you think these songs express the book's meaning.

Proportional Reasoning

Think-Tac-Toe

Create a word problem that requires proportional reasoning. Solve the problem and explain why it requires proportional reasoning.	Find a word problem from the text that requires proportional reasoning. Solve the problem and explain why it was proportional.	Think of a way that you use proportional reasoning in your life. Describe the situation, explain why it is proportional and how
Create a story about a proportion in the world. You can write it, act it, video tape it, or another story form.	How do you recognize a proportional situation? Find a way to think about and explain proportionality.	You use it. Make a list of all the proportional situations in the world today.
Create a pict-o-gram, poem or anagram of how to solve proportional problems	Write a list of steps for solving any proportional problem.	Write a list of questions to ask yourself, from encountering a problem that may be proportional through solving it.

LESSON TITLE: The Pythagorean Theorem
Lesson 4

Curriculum Area: Pre-Algebra

Authors: Susan Bray, Sally Becker, Andrea Esperat

Grade Level: 8

Time Required: 90 minutes

Instructional Grouping: Heterogeneous

1. Overview of Lesson:

Today students will contract with the teacher for independent practice and extension through their choices on a Think Tac Toe board. Students will select their activities today and begin their work. The contracts will be continued at home and completed during the first part of the next class period.

2. Materials:

Think Tac Toe sheets for every student.

3. As a result of this lesson students should:

(a) know...

- The Pythagorean Theorem states that in a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs ($c^2 = a^2 + b^2$).
- In a right triangle, the hypotenuse is the leg opposite the right angle.
- The hypotenuse is the longest side of the right triangle.

(b) understand...

- The Pythagorean theorem was developed and used in ancient times and is still an integral tool today.
- The relationship between the three sides of a right triangle.
- The Pythagorean Theorem works only for right triangles.

(c) be able to do...

- Use measurements to test the Pythagorean Theorem.
- Apply the theorem to solve practice problems.
- Recognize when to use the Pythagorean Theorem.

4. Pre-assessment:

5. Steps in Lesson:

- 1) The teacher will pass out Think Tac Toe sheets to every student.
- 2) The teacher will explain the activity choice in each square.
- 3) Just as in the “real” Tic Tac Toe game, students will select a line of three activities (3) to complete by the middle of the next class period.
- 4) Teacher will guide students as needed for the remainder of the period.

6. What is differentiated and how?

- **The content is differentiated by increased complexity in the right-hand column.**
- **The process is differentiated by student interest (choice) and learning style.**

7. Practical Hints for Implementation:

- **Students will need clear directions and ready access to materials for all nine squares.**
- **You may want to steer your more advanced students toward the far right column.**

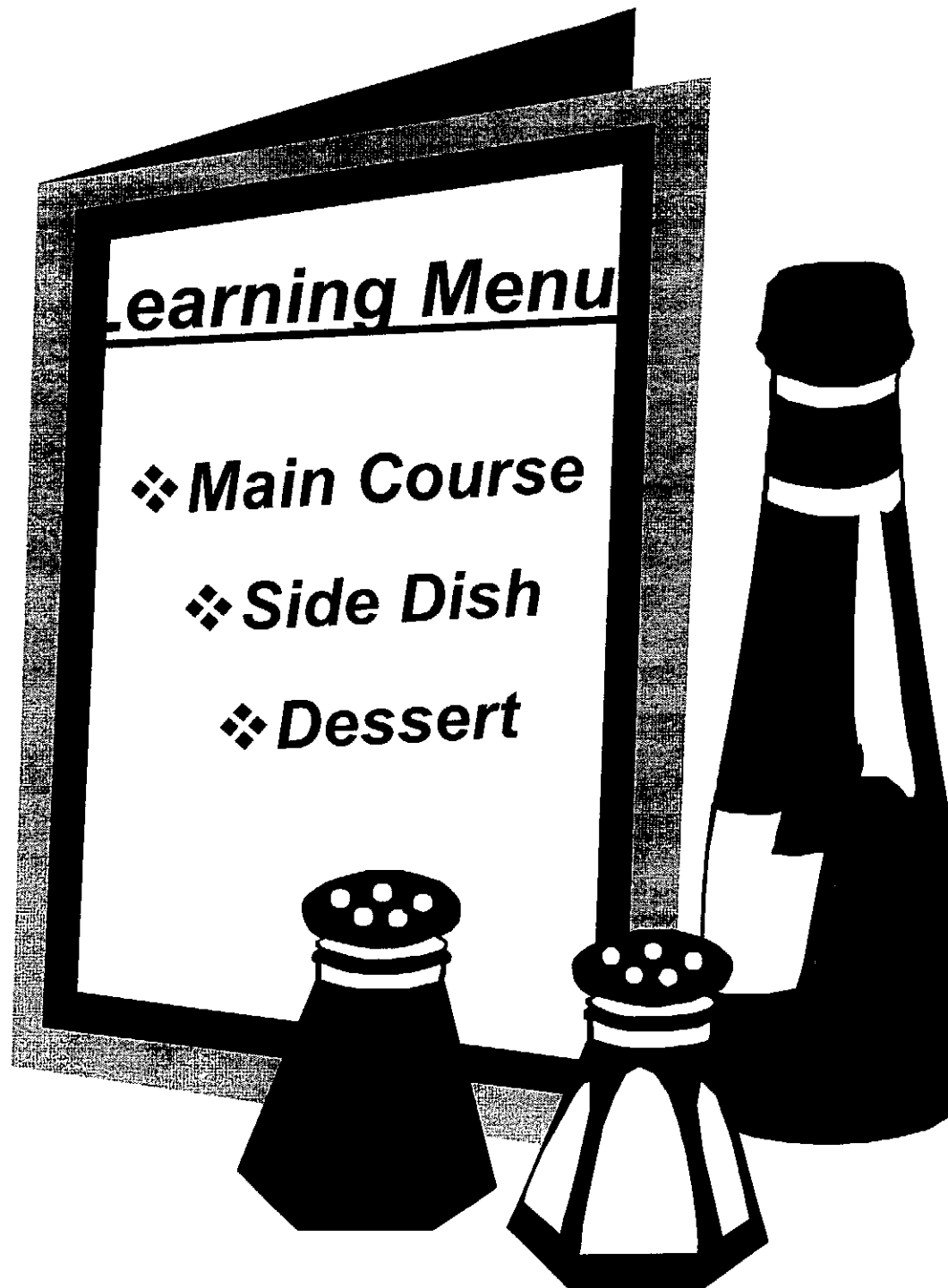
***Attachments:**

- **Think Tac Toe master**
- **Directions for each square**

Think Tac Toe The Pythagorean Theorem

***Directions:** Complete the activities described in either one vertical or one diagonal row.*

Draw a right triangle and label the right angle, legs, and hypotenuse. State the relationship of the sides of a triangle.	Name a career in which one would have to use the Pythagorean Theorem. Give an example of when, where and how it would be used.	Design a teaching tool with a diagram of a proof of the Pythagorean Theorem. Label it for all to understand.
Complete all of the EVEN Practice Problems on p. 266 of your Prentice Hall text.	Complete the Practice Problems found at this site: http://regentsprep/Regents/math/fpyth/PracPyth.htm	Create four (4) real world problems that would need the use of the Pythagorean Theorem. Show the solutions.
Determine a set of 8 Pythagorean "TRIPLES." Prove them with equations.	Write a descriptive essay about Pythagoras: his life, accomplishments, and failures.	Find another mathematical theorem. State it, diagram its proof, and write a paragraph about why, how and where it works.



Adapting for Older Students

- The menu format can be adapted to an agenda if the idea of a menu is too juvenile for your population.

Menu Planner

Use this template to help you plan a menu for your classroom

Menu: _____

Due: All items in the main dish and the specified number of side dishes must be completed by the due date. You may select among the side dishes and you may decide to do some of the dessert items as well.

.....

Main Dish (complete all)

- ◆
- ◆
- ◆

.....

Side Dish (select ____)

- ◆
- ◆

.....

Dessert

- ◆
- ◆

Learning Contract—Menu Planner-- Fantasyland

Destination: *Fantasyland* **Due:** 2 week

Main Dish: *(Complete all)*

Select one fairy tale. Read it

to yourself

to one other person _____(name)

Complete a story map (to show characters; setting; problem; solution).

Find five new, interesting words. Write a sentence for each word.

Side Dish – Learning Centers (Choose 1 or more)

Comparing center: Compare this fairy tale to another story you have read. How are they alike? How are they different? Choose your design: trifold, flip book, or mini-book.

Tape Center: Record your favorite part of the fairy tale on the _____ recorder.

Art Center: Illustrate the most important event in your fairy tale.

Dessert

Listening post: Listen to a fairy tale tape of your choice.

Title: _____

Library corner: Find another fairy tale to read.

Title: _____



READING ACTIVITIES MENU



Student's Name: _____

Directions:

During the next _____ days, create your own menu of activities from the list below to do in place of the regular assignments.

Date(s)Activity

Create and perform a puppet show of the story or book.

Interview another person who read the book.

Write a letter to the author.

Write another chapter.

Write a different ending.

Using a thesaurus, find synonyms for your 6 favorite words.

Create a dialogue between 2 characters.

Read other books by the same author. Compare/contrast.

Read another book of the same type. Compare/contrast.

Write a story or book of the same type which contains similar elements.

Include 3 free days. Add on days to the activities listed or create your own activities:

From Susan Winebrenner's *Teaching Gifted Kids in the Regular Classroom*. (2001). Minneapolis, MN: Free Spirit Publishing.

Menu for Grade 6 – *The Westing Game*

Main Course

Answer the following questions in your own words. There is not always a right and wrong answer. Your judgment is important!

- How does Turtle's partner bring about change in her? *Explain fully and illustrate your answer with examples.*
- Why does Madame Hoo feel guilty during the last meeting of the heirs?
- What reason does James Hoo have for hating Samuel Westing? *Explain why this is so.*
- What inaccuracies does Turtle deliberately include in her summary in Chapter 30? *Explain why the inaccuracies are included.*

Side Dishes

Choose 2 from the choices below. You may go back for more once you've finished the main course!

- How does the author use chess as a unifying agent in the story? *Give several examples.*
- How does Westing overcome needs in the heirs' lives by this insightful parings? *Be specific.*
- How does the mistake in Sydelle's identity prove beneficial to the other heirs? *Again, be specific.*
- How does the author stress Westing's appreciation for America? *Give examples.*
- How does the setting serve as a microcosm for the heirs? *Be specific, give examples. (micro = small, cosin [kosmos] = world/order)*
- Compose a personal letter from Samuel Westing to Crow in which you reveal the warm personal feelings he has for her. Discuss Westing's grief and frustration over the loss of their only child. Conclude with an attempt to make up for long years of separation. *Use Westing's voice as you write.*

Dessert

Dessert is optional! You may pass on dessert, or you may indulge in any that appeal to you! Enjoy!

- Research the writing of a will. Why might you want a lawyer to help with the writing of a will? Find out what might invalidate a will. Try to locate some interesting or humorous wills. Culminate this activity by writing your own will.
- Cinquain a character from the novel. Please include an illustration of your character with the poem.
- Write an obituary for one of the characters in the novel. Read some obituaries in the local newspaper for preparation. Include an appropriate illustration with your obituary.
- Research the history of the abacus. Locate an abacus and learn to use it. Compare the abacus and calculator discussing their advantages and disadvantages. Share what you learned with the class.

Poetry Matters Book Project

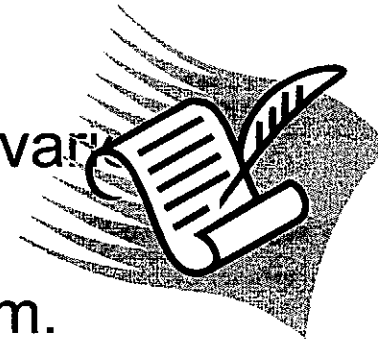


Main Dish: You must complete all of these tasks.

1. Create a colorful and artistic cover for your poetry book.
2. Include at least 3 samples of your own poetry.
3. Include poems from at least 3 different authors you think are excellent examples of inner (heart map) and/or outer vision (imagery, similes, metaphors). They should be different forms and/or styles.
4. Share at least one poem (your own or another author) with the class.
5. Include your heart map.
6. Create a list of wild, wonderful, and/or wacky words for writing. Put at least 2 on our word wall and place the list in your book.

Side Dishes: Select at least 2 tasks from the following list.

1. Illustrate at least one of the poems in your collection.
 2. Use musical instruments to accompany a poem while sharing it.
 3. Do a dramatic interpretation of a poem.
 4. Write, revise, edit and illustrate at least 2 haiku poems.
 5. Write, revise, edit and illustrate at least 2 cinquian poems.
 6. Write, revise, edit and illustrate an alliterative poem.
 7. Write, revise, edit and illustrate or musically accompany a poem using onomatopoeia.
 8. Create a list of poetic phrases from a variety of books.
- Note what book each one was selected from.



Dessert: Choose as many as these as you would like to be an X Factor Learner!

1. Type your poems and import pictures to illustrate them.
2. Illustrate all of your poems,.
3. Collect metaphors and similes and create a way to display them.
4. Research a known poet. Tell us about his/her life and style of writing. Also, let us know why you find this poet interesting.
5. Learn about narrative poems and write at least one.
6. Create a shape poem. Use color and illustration to present it.
7. Create a Table of Contents for your book.
8. Create a Poetry Glossary for your book.
9. Create a poem for 2 voices and perform it.

Similar Figures Menu

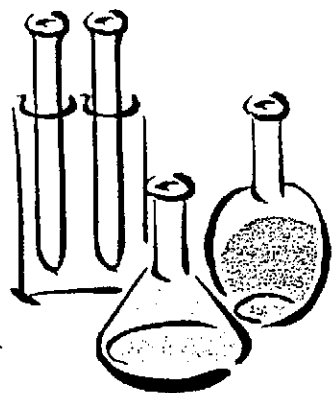
Negotiables (Choose 1):

1. Create a book of similar figure applications and problems. This must include at least 10 problems. They can be problems you have made up or found in books, but at least 3 must be application problems. Solve each of the problems and include an explanation as to why your solution is correct.
2. Show at least five different applications of similar figures in the real world, and make them into math problems. Solve each of the problems and explain the role of similarity. Justify why the solutions are correct.

Similar Figures Menu

Optionals:

1. Create an art project based on similarity. Write a cover sheet describing the use of similarity and how it affects the quality of the art.
2. Make a photo album showing the use of similar figures in the world around us. Use captions to explain the similarity in each picture.
3. Write a story about similar figures in a world without similarity.
4. Write a song about the beauty and mathematics of similar figures.
5. Create a “how-to” list or book about finding and creating similar figures.



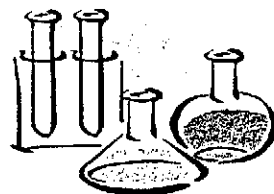
Science Agenda on Chemical Problems in the Environment

Imperatives (You must do these...)

1. Select a chemical problem in the environment, define/describe the difficulties it presents, why, where, and to whom /what.

Your choices are: global warming/greenhouse effect, ozone depletion, acid rain, air pollution, water pollution (including thermal pollution, and land/ground pollution).

2. Complete a map showing where the problem exists what/who is affected by it, and degree of impact.
3. Develop a talking paper that describes present and future solutions, as well as your recommendations.



Negotiables (You must do at least one of these)

1. Determine approximate costs of the problem in one badly affected region and develop a graphic that shows total costs and what makes the costs (for example: health costs, clean-up costs, lost revenues from land, etc.)
2. Develop a timeline of the evolution of the problem over the last 100 years, including significant dates, and factors that contributed to the change. Take the timeline into the future based on your current understanding of trends associated with the problem.

Options (You may do 1 or more of these)

1. Create a Gary Larsen-type cartoon or an editorial cartoon that makes a commentary on the problem.
2. Prepare a fictionalized account, but based on scientific fact, of a person who lives in a badly affected area. Your goal is to put a human face on the problem.
3. Develop a 60 second public service announcement (taped) to raise audience awareness of the problem and introduce positive actions citizens might take to improve the prognosis for the future.

Based on work of Ellyn Shaw
Les Bois Junior High— Boise, Idaho

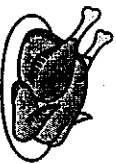
*To be an effective citizen, it is necessary to know
how to deal with problems related to science and technology*

MENU CONTRACT

“Probability”

Due: _____

All items in the main dish and the specified number of side dishes must be complete by the due date. You may select among the side dishes and you may decide to do some of the desserts items, as well.



Main Dishes (complete all)

- 1

 Complete the “meteorology simulation” on p. 88-89 of your textbook.
- 2

 Create a list of 10 pairs of events. 5 pairs should contain events that are *dependent*; 5 pairs should contain events that are *independent*. Explain each classification.
- 3

 Complete the “frequency table” assignment on p. 506-507 of your textbook.
- 4

 Examine the attached list of functions and determine which functions represent probability distributions.



Side Dishes (Select 2)

- 1

 Work with a partner to analyze the game of “Primarily Odd.” See your teacher for game cubes and further instructions.
- 2

 Design a “game spinner” that has this probability distribution: $P(\text{red})=0.1$; $P(\text{green})=0.2$; $P(\text{blue})=0.3$; $P(\text{yellow})=0.4$.
- 3

 Suppose a dart lands on a dartboard made up of four concentric circles. For the center of the board (the “bull’s eye”), $r=1.5$; the remaining rings have widths of 1.5. Use your understanding of area and probability to determine the probability of 1) hitting a “bull’s eye” and 2) landing in the outermost ring.



Desserts (Select 1)

- 1

 Figure the probability of “Murphy’s Law” and make a case for whether or not it should indeed be a “law.”
- 2

 Use a frequency table to chart the colors that your classmates wear for a week. Then, use probability to predict how many students will wear a certain color on a given day.

MENU PLANNER



Menu for: _____ Due: _____

All items in the main dish and the specified number of side dishes must be complete by the due date. You may select among the side dishes and you may decide to do some of the desserts items, as well.



Main Dishes (complete all)

- 1
- 2
- 3
- 4



Side Dishes (Select _____)

- 1
- 2
- 3
- 4



Desserts (Optional)

- 1
- 2
- 3